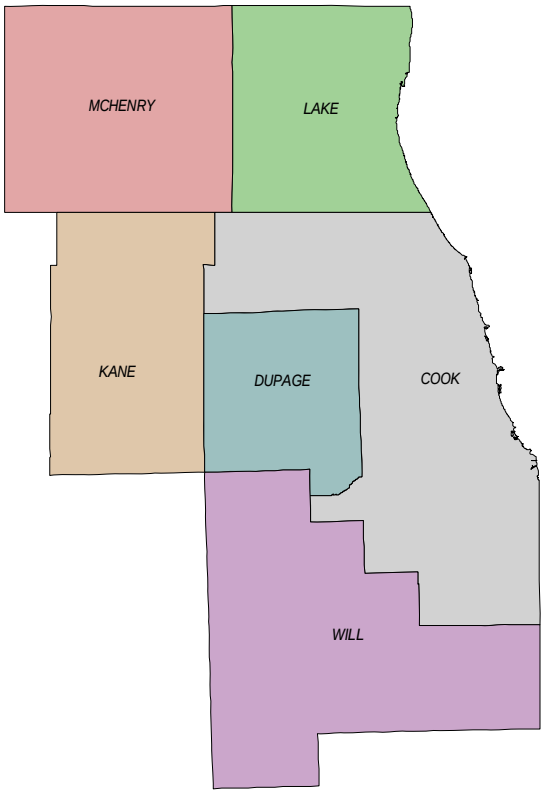
Pedestrian Safety at Rail Grade Crossings in Northeastern Illinois



Railroad Safety Section
Illinois Commerce Commission
527 East Capitol Avenue
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April 2005

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

April 15, 2005

The Honorable Antonio Munoz
Chairman Senate Transportation Committee

The Honorable George Shadid
Vice-Chairman Senate Transportation Committee

Re: Analysis of Pedestrian Safety in Northeastern Illinois

Dear Senator Munoz and Senator Shadid:

Per Senator Shadid's correspondence dated November 19, 2004, please find attached the Commission's Rail Safety staff report concerning "Pedestrian Safety at Highway-Rail Grade Crossings in Northeastern Illinois".

Should you have questions or need clarification about any of the information presented, please contact Peggy Snyder, Director of Governmental Affairs, at (217) 524-0619.

Sincerely,

Edward C. Hurley
Chairman

Executive Summary

The Illinois Commerce Commission was recently asked to examine two aspects of pedestrian safety at rail grade crossings in the six-county region of northeastern Illinois: (1) at rail grade crossings where pedestrian access is permitted, are the warning devices sufficient, and (2) should any steps be taken to increase efforts to improve safety for pedestrians at rail grade crossings?

To provide background and a basis of comparison this report first provides national and statewide statistics concerning pedestrian safety in general, and then focuses on northeastern Illinois. With this base information in place, an analysis of 39 pedestrian-train incidents that occurred in northeastern Illinois between 2000 and 2004 was completed in an effort to identify the effectiveness of the different types of existing pedestrian warning devices. In this report pedestrians, bicyclists and other types of non-motorized highway system users are referred to as pedestrians.

Within northeastern Illinois, pedestrian access is permitted at-grade at 1,697 highway-rail grade crossings, 107 pedestrian-rail crossings, and 197 Metra station crosswalks. Of the highway-rail grade crossings, 1,156 (68%) have sidewalks or pathways provided for pedestrian access. The highway and pedestrian warning devices associated with each of these three crossing types is presented in the following table.

Type of Pedestrian Warning Devices at Highway-Rail and Pedestrian-Rail Grade Crossings in Northeastern Illinois.

Type of Rail Crossing	Number of Crossings	Number of Crossings W/ Active Warning Devices	Ped. Gates & Bells	Ped. Automatic Flashing Lights & Bells	Ped. Bells	Ped. Other
Highway-Rail	1,697	1,256	155	20	1,078	3
Pedestrian-Rail	107	75	7	66	1	1
Metra Crosswalk	197	58	0	58	0	0
Total	**2,001**	**1,389**	**162**	**86**	**1,079**	**4**

Between January 1, 2000 and December 31, 2004, there were 39 collisions between pedestrians and trains in the six-county region of northeastern Illinois. These 39 pedestrian-train collisions resulted in 25 fatalities and 14 injuries. With the available data and incident reports, 33 of the 39 collisions were analyzed. The analysis indicates that of the 33 pedestrian-train collisions, 66 percent were likely caused by

pedestrians disregarding, or ignoring the pedestrian warning devices, as well as the adjacent highway warning devices.

Pedestrian-Train Collisions by Type of Rail Crossing and Warning Device

Type of Rail Crossing	Highway AFLS With Ped. Bells	Highway AFLS & Gates With Ped. Bells	Highway AFLS & Gates With Ped. AFLS	Highway AFLS & Gates With Ped. Gates	Pedestrian AFLS With Ped. Bells	No Pedestrian Warning Devices	Total
Highway-Rail	1	16	2	12			**31**
Pedestrian-Rail					0	0	**0**
Metra Crosswalk					4	4	**8**
Total	**1**	**16**	**2**	**12**	**4**	**4**	**39**

Note: AFLS - Automatic Flashing Lights

The photo above shows pedestrians disregarding the pedestrian gates.

- Conclusion 1 – Sixty-six percent (22 of 33) of these pedestrian-train collisions appear to have been caused by the pedestrian disregarding the warning devices provided that indicated a train was approaching; many of these crossings were equipped with pedestrian gates.
- Conclusion 2 – Twenty-one percent (8 of 39) of the pedestrian-train collisions occurred at Metra station crosswalks that comprised only ten percent of all

grade crossings in northeastern Illinois. This is most likely due to the high volume of pedestrians exposed to train traffic at the Metra station crosswalks.

- Conclusion 3 – The severity of train-pedestrian collisions are extreme. In northeastern Illinois between 2000 and 2004, 64 percent (25 of 39) of train-pedestrian collisions resulted in a fatal injury to the pedestrian. One of the highest severity rates of all transportation related incidents.
- Conclusion 4 – Additional research is necessary to address the effectiveness of pedestrian safety measures at rail grade crossings.
- Conclusion 5 – Pedestrian warning devices, including pedestrian gates, are commonly ignored and easy to circumvent.
- Recommendation 1 – Consideration should be given to initiate the research and development of new types of pedestrian warning systems that improve pedestrian behavior when warning of an approaching train is provided. In addition, consideration should be given to installing warning signs at Metra station crosswalks and other pedestrian-rail crossings with similar pedestrian-train exposure rates, where feasible.
- Recommendation 2 – Expand efforts of Illinois Operation Lifesaver to educate the public as to how to safely traverse highway rail grade crossings, as well as to the individual's responsibility related to crossing safety. For example, increasing the number of OL presentations in areas where reports indicate patterns of pedestrian violations and also targeting those areas with additional rail crossing safety public service announcements. In addition, continue Illinois Operation Lifesaver's work with local law enforcement through cooperative efforts, such as the Commission's Public Education and Enforcement Research Study (PEERS).

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1. Introduction

The Illinois Commerce Commission was recently asked to examine two aspects of pedestrian safety at highway-rail grade crossings in the six-county region of northeastern Illinois: (1) at rail grade crossings where pedestrian access is permitted, are the warning devices sufficient, and (2) should any steps be taken to increase efforts to improve safety for pedestrians at rail grade crossings?

In order to address these two questions, Illinois Commerce Commission (Commission) staff has prepared this report on pedestrian safety at rail grade crossings in northeastern Illinois. The report provides:

- A background on pedestrian safety nationally and in Illinois
- Analysis of highway-rail grade crossings, pedestrian-rail grade crossings, and crosswalks at Metra stations to determine the type and quantity of pedestrian crosswalks and any pedestrian specific warning devices present
- Analysis of 39 collisions involving pedestrians at highway-rail grade crossings, pedestrian-rail grade crossings and Metra station crosswalks that occurred between January 1, 2000 and December 31, 2004
- Review of a possible enhancement to consider at a pedestrian crosswalk
- Conclusion

The report utilizes a "funnel" approach to presenting the information, starting with broad statistics concerning pedestrian safety in general, and narrowing down to an analysis of 39 pedestrian-train collisions that occurred in northeastern Illinois between 2000 and 2004:

- Start very general with USA traffic collision (or crash) statistics
- Then, focus on Illinois traffic collision statistics
- Then, highway-rail grade crossing statistics for the USA and Illinois by type of warning device
- Then, vehicle-train collisions at highway-rail grade crossings for the USA and Illinois by type of highway user, and finally
- Only, pedestrian-train collisions that occurred in northeastern Illinois between 2000 and 2004 (pedestrian including bicycle and wheelchair users)

2. Background

Pedestrians, bicyclists and other types of non-motorized highway system users (hereinafter simply referred to as pedestrians), are essential components of functional multi-modal transportation systems. Current urban design and planning initiatives are oriented towards promoting non-motorized means of travel whenever possible. Related initiatives to promote accessibility and mobility for disabled individuals, have also fostered the construction of transportation facilities that ensure safety and ease of use for all system users, however, many accessibility challenges remain. A guiding federal transportation policy goal is to double the number of trips made by walking and biking along with a significant reduction in injury rates.

Exhibit 1 indicates that transportation related fatalities involving pedestrians, bicyclists and other non-motorized highway users accounted for approximately 8.9 percent of all traffic collision related fatalities that occurred nationally between 1994 and 2003.(NHTSA) Nationally, over the ten-year period, an average of approximately 6,000 pedestrians were fatally injured in traffic collisions or crashes each year. The term crash and collision refer to different events; for example all train related events with either motorized or non-motorized highway users, are referred to as collisions. However, some traffic crashes do not involve a collision with another vehicle, and are simply referred to as crashes.

Exhibit 1. Table of Traffic Crash Related Fatalities by Type of Vehicle in the USA: 1994 - 2003.

Year	Passenger Cars	Light Trucks	Large Trucks	Buses	Other	Motorcycle	Pedestrians	Bicyclists	Other	Total
1994	21,997	8,904	670	18	409	2,320	5,489	802	107	40,716
1995	22,423	9,568	648	33	392	2,227	5,584	833	109	41,817
1996	22,505	9,932	621	21	455	2,161	5,449	765	154	42,063
1997	22,199	10,249	723	18	420	2,116	5,321	814	153	42,013
1998	21,194	10,705	742	38	409	2,294	5,228	760	131	41,501
1999	20,862	11,265	759	59	447	2,483	4,939	754	149	41,717
2000	20,699	11,526	754	22	450	2,897	4,763	693	141	41,945
2001	20,320	11,723	708	34	458	3,197	4,901	732	123	42,196
2002	20,569	12,274	689	45	528	3,270	4,851	665	114	43,005
2003	19,460	12,444	723	40	804	3,661	4,749	622	140	42,643
Total	**212,228**	**108,590**	**7,037**	**328**	**4,772**	**26,626**	**51,274**	**7,440**	**1,321**	**419,616**
Percent	**31.3%**	**16.0%**	**1.0%**	**0.0%**	**0.7%**	**3.9%**	**7.6%**	**1.1%**	**0.2%**	**61.9%**

Source: National Highway Traffic Safety Administration

Comparable data for Illinois for the same time frame and by type of vehicle is not available, however Exhibit 2 shows that between 2000 and 2003, approximately 14.7 percent of Illinois traffic crashes resulted in a fatality to a pedestrian, significantly higher than the national average of 8.9 percent of all crashes involving

a pedestrian. Over the four-year period, on average, 210 pedestrians were fatally injured each year in Illinois, or approximately 3.5 percent of the national total of all pedestrians fatally injured. Later, we will see that approximately eight of these 210 pedestrian related fatalities, on average, occurred at highway-rail grade crossings in northeastern Illinois.

Exhibit 2. Illinois Traffic Crash Statistics – Pedestrian Crashes Compared to Total Crashes.

Illinois Traffic Crashes	2000	2001	2002	2003	Total
Total Traffic Crashes of All Kinds	460,172	443,293	438,990	437,289	**1,779,744**
Total Traffic Fatalities of All Kinds	1,418	1,414	1,420	1,454	**5,706**
Total Traffic Injuries of All Kinds	134,256	124,630	127,720	131,279	**517,885**
Pedestrian, Bicyclists and Wheelchair Collisions	10,369	9,802	9,841	9,265	**39,277**
Pedestrian, Bicyclists and Wheelchair Fatalities	207	212	214	207	**840**
Pedestrian, Bicyclists and Wheelchair Injuries	9,828	9,405	9,496	8,860	**37,589**
Pedestrian % of Total Collisions	**2.3%**	**2.2%**	**2.2%**	**2.1%**	**2.2%**
Pedestrian % of Total Fatalities	**14.6%**	**15.0%**	**15.1%**	**14.2%**	**14.7%**
Pedestrian % of Total Injuries	**7.3%**	**7.5%**	**7.4%**	**6.7%**	**7.3%**

Source: Illinois Department of Transportation

Pedestrian injuries and fatalities occur at a much greater rate than the relative percentage of all crashes. Pedestrian collisions in Illinois account for 2.2 percent of all crashes, yet pedestrian fatalities account for 14.7 percent of all fatalities and 7.3 percent of all injuries.

Exhibit 3 provides a tabulation of Illinois' fatal pedestrian crashes by age of the victim. Pedestrians between the ages of 35 to 54 constitute the greatest number of fatalities by age. Seniors 75 and over are also a significant percentage. Collectively these two age groups account for 45 percent of all pedestrian fatalities in Illinois between 2000 and 2003. As the American population ages, the number of seniors involved in pedestrian-train collisions may rise, as well.

Exhibit 3. Age Distribution for Fatal Illinois Pedestrian Traffic Collisions.

Age of Pedestrians Fatally Injured	2000	2001	2002	2003	Total	% Total
4 or Younger	7	7	4	8	**26**	**3.4%**
5 to 9	8	5	6	6	**25**	**3.3%**
10 to 14	9	9	6	8	**32**	**4.2%**
15 to 19	8	5	7	13	**33**	**4.4%**
20 to 24	6	16	5	15	**42**	**5.6%**
25 to 34	24	18	31	24	**97**	**12.8%**
35 to 44	30	29	28	31	**118**	**15.6%**
45 to 54	30	20	36	30	**116**	**15.3%**
55 to 64	22	27	13	16	**78**	**10.3%**
65 to 74	22	14	22	13	**71**	**9.4%**
75 or Older	23	35	34	26	**118**	**15.6%**
Total	**189**	**185**	**192**	**190**	**756**	**100.0%**

Source: Illinois Department of Transportation

Geographically, approximately 70 percent of all highway traffic crashes occurred in the six-county region of northeastern Illinois. This is significantly higher than the relative percentage of highway-rail grade crossing collisions in general, in which only 40 percent of collisions between trains and vehicles, or pedestrians, occurred within northeastern Illinois between 1999 and 2003.

Exhibit 4. Geographical Distribution of All Types of Highway Traffic Crashes in 2002 and 2003.

County	Collisions		Fatalities		Injuries	
	2002	2003	2002	2003	2002	2003
Cook	225,773	220,719	426	406	58,335	60,214
DuPage	28,971	29,538	40	52	9,088	9,004
Kane	13,431	13,604	39	45	4,497	4,620
Lake	19,267	19,423	61	41	6,243	6,323
McHenry	7,144	7,495	36	40	2,419	2,566
Will	13,920	14,759	56	79	4,707	5,354
6 County Total	**308,506**	**305,538**	**658**	**663**	**85,289**	**88,081**
% of Illinois Total	**70.3%**	**69.9%**	**46.3%**	**45.6%**	**66.8%**	**67.1%**
Illinois Total	***438,990***	***437,289***	***1,420***	***1,454***	***127,719***	***131,279***

Source: Illinois Department of Transportation

Alcohol is a leading contributor to all types of traffic crashes. Approximately 47.6 percent of all traffic crash related fatalities between 1999 and 2003, were alcohol related.

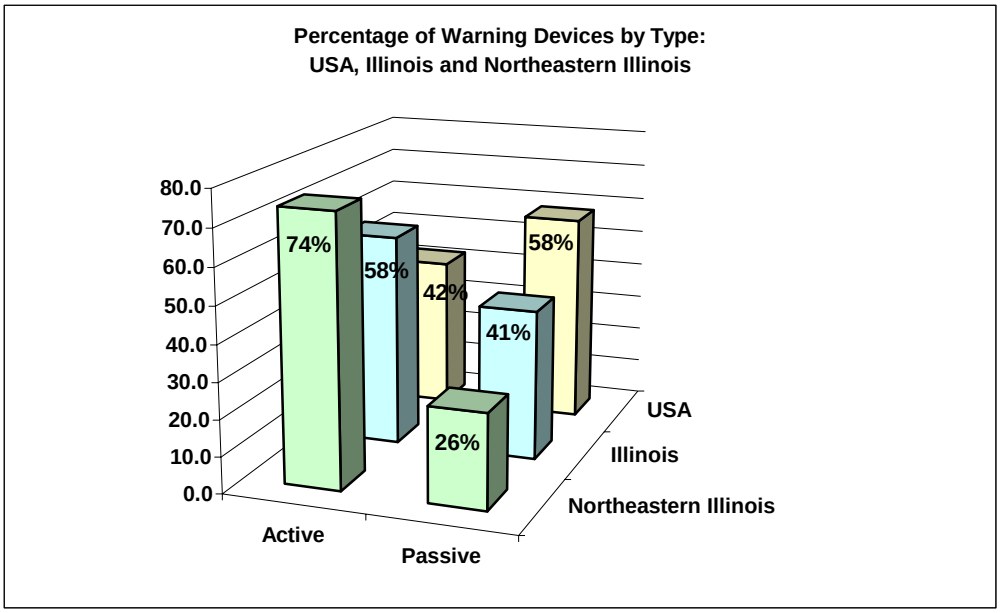
As of March 2005, Illinois had 8,485 public highway-rail grade crossings, 4,741 private highway-rail grade crossings, and 383 pedestrian-rail grade crossings for a total of 13,609 highway-rail grade crossings of all types. Illinois also has 2,719 highway-rail bridges where rail and highway traffic has been separated. Illinois ranks second in the nation in terms of the total number of highway-rail grade crossings, only Texas has more highway-rail grade crossings than Illinois.

Exhibit 5. Table and Chart of Highway-Rail Grade Crossings by Type of Warning Device.

Warning Device	USA	Percent USA	Illinois	Percent Illinois	NE. Illinois	Percent NE. Illinois
Gates and Flashing Lights	36,410	24.2%	2,754	32.5%	985	58.1%
Flashing Lights	25,656	17.0%	2,177	25.7%	266	15.7%
Wig Wag, Traffic Signal, or Bell	1,269	0.8%	28	0.3%	3	0.2%
Crossbucks	68,834	45.7%	2,984	35.2%	244	14.4%
Stop Sign	9,905	6.6%	121	1.4%	13	0.8%
None / Other	8,670	5.8%	421	5.0%	185	10.9%
Total	**150,744**	**100.0%**	**8,485**	**100.0%**	**1,696**	**100.0%**

Source: Federal Railroad Administration, Illinois Commerce Commission

Northeastern Illinois has over twice the percentage of highway-rail grade crossings provided with gates as a warning device for motorists and pedestrians, than the nation as a whole (58 percent compared to 24 percent).



Between January 1, 2000 and December 31, 2004, a total of 1,319 incidents involving trains and vehicles or pedestrians, occurred in Illinois. Exhibit 6 illustrates that 385 individuals were killed and 505 were injured in these incidents.

Exhibit 6. Table of all types of rail related incidents in Illinois: 2000 – 2004.

		Incidents / Collisions				Injuries				Fatalities			
Type of Incident	**Type of Vehicle**	**Number**	**%**	***Total***	***%***	**Number**	**%**	***Total***	***%***	**Number**	**%**	***Total***	***%***
Station Platform	**Pedestrian	4	0.3%			1	0.2%			3	0.8%		
Station Platform	Trespasser	1	0.1%			0	0.0%			1	0.3%		
Suicide	Suicide	142	10.8%	***379***	***28.7%***	10	2.0%	***134***	***26.5%***	132	34.3%	***247***	***64.2%***
Trespasser	Trespasser	232	17.6%			123	24.4%			111	28.8%		
Xing-Pedestrian	**Pedestrian	6	0.5%	***6***	***0.5%***	2	0.4%	***2***	***0.4%***	4	1.0%	***4***	***1.0%***
Xing-Private	Auto	28	2.1%			7	1.4%			2	0.5%		
	Farm/Const Equip	3	0.2%			0	0.0%			0	0.0%		
	Other	1	0.1%			1	0.2%			0	0.0%		
	**Pedestrian	0	0.0%	***99***	***7.5%***	0	0.0%	***23***	***4.6%***	0	0.0%	***5***	***1.3%***
	PickUp	13	1.0%			3	0.6%			1	0.3%		
	Truck	12	0.9%			1	0.2%			1	0.3%		
	Truck-Trailer	36	2.7%			9	1.8%			1	0.3%		
	Van	6	0.5%			2	0.4%			0	0.0%		
Xing-Public	ATV/Snowmobile	2	0.2%			1	0.2%			1	0.3%		
	Auto	479	36.3%			212	42.0%			57	14.8%		
	**Bicycle	9	0.7%			3	0.6%			5	1.3%		
	Farm/Const Equip	12	0.9%			1	0.2%			1	0.3%		
	Motorcycle	3	0.2%			2	0.4%			0	0.0%		
	Other	4	0.3%	***835***	***63.3%***	1	0.2%	***346***	***68.5%***	0	0.0%	***129***	***33.5%***
	**Pedestrian	49	3.7%			20	4.0%			27	7.0%		
	PickUp	100	7.6%			30	5.9%			13	3.4%		
	Truck	74	5.6%			39	7.7%			7	1.8%		
	Truck-Trailer	54	4.1%			19	3.8%			1	0.3%		
	Van	46	3.5%			17	3.4%			15	3.9%		
	**Wheelchair	3	0.2%			1	0.2%			2	0.5%		
Total		**1,319**	**100%**	**1,319**	**100%**	**505**	**100.0%**	**505**	**100%**	**385**	**100.0%**	**385**	**100%**

Source: Illinois Commerce Commission, Federal Railroad Administration

*Note: ** Indicates the incidents that will be analyzed later as "pedestrian" collisions.*

Exhibit 7 illustrates that in northeastern Illinois during the same five-year time period, 220 people killed and 236 injured in incidents with trains. The majority of those injured or killed, on railroad property were trespassers or suicides (170 of 220 fatalities = 77%).

Exhibit 7. Table of all types of rail related incidents in Northeastern Illinois: 2000 – 2004.

		Incidents / Collisions				Injuries				Fatalities			
Type of Incident	**Type of Vehicle**	**Number**	**%**	***Total***	***%***	**Number**	**%**	***Total***	***%***	**Number**	**%**	***Total***	***%***
Station Platform	**Pedestrian	4	0.6%			1	0.4%			4	1.8%		
Station Platform	Trespasser	0	0.0%			0	0.0%			0	0.0%		
Suicide	Suicide	99	15.4%	***258***	***40.1%***	6	2.5%	***87***	***36.9%***	93	42.3%	***174***	***79.1%***
Trespasser	Trespasser	155	24.1%			80	33.9%			77	35.0%		
Xing-Pedestrian	**Pedestrian	4	0.6%	***4***	***0.6%***	1	0.4%	***1***	***0.4%***	3	1.4%	***3***	***1.4%***
Xing-Private	Auto	13	2.0%			3	1.3%			1	0.5%		
	Farm/Const Equip	0	0.0%			0	0.0%			0	0.0%		
	Other	1	0.2%			1	0.4%			0	0.0%		
	**Pedestrian	0	0.0%	***54***	***8.4%***	0	0.0%	***11***	***4.7%***	0	0.0%	***1***	***0.5%***
	PickUp	5	0.8%			1	0.4%			0	0.0%		
	Truck	9	1.4%			1	0.4%			0	0.0%		
	Truck-Trailer	21	3.3%			4	1.7%			0	0.0%		
	Van	5	0.8%			1	0.4%			0	0.0%		
Xing-Public	ATV/Snowmobile	0	0.0%			0	0.0%			0	0.0%		
	Auto	211	32.8%			94	39.8%			23	10.5%		
	**Bicycle	2	0.3%			0	0.0%			2	0.9%		
	Farm/Const Equip	1	0.2%			0	0.0%			0	0.0%		
	Motorcycle	1	0.2%			1	0.4%			0	0.0%		
	Other	1	0.2%	***328***	***50.8%***	0	0.0%	***137***	***58.1%***	0	0.0%	***42***	***19.1%***
	**Pedestrian	26	4.0%			11	4.7%			14	6.4%		
	PickUp	16	2.5%			5	2.1%			1	0.5%		
	Truck	16	2.5%			6	2.5%			0	0.0%		
	Truck-Trailer	27	4.2%			10	4.2%			0	0.0%		
	Van	24	3.7%			9	3.8%			0	0.0%		
	**Wheelchair	3	0.5%			1	0.4%			2	0.9%		
Total		**644**	**100%**	**644**	**100%**	**236**	**100.0%**	**236**	**100%**	**220**	**100.0%**	**220**	**100%**

Source: Illinois Commerce Commission, Federal Railroad Administration

Approximately 57 percent of all railroad related fatalities in Illinois occurred in the six-county region of northeastern Illinois. Likewise, 46 percent of all railroad related injuries occurred in northeastern Illinois, and 49 percent of all railroad related incidents. However, only 20 percent of all highway-rail grade crossings in Illinois, are located in the six county region.

Exhibits 8, 9 and 10, provide a summary of the number and type of collisions that occurred at public highway-rail grade crossings in the nation, Illinois and northeastern Illinois, between 1995 and 2004.

Exhibit 8. USA Highway-Rail Grade Crossing Collisions by Type of Vehicle: 1995 – 2004.

Year	Passenger Cars	Trucks	Truck Trailer	PickUp	Van	Bus	School Bus	Motorcycle	Other Vehicle	Pedestrian	Other Non-Motor	Total
1995	2,505	1,035	412	0	0	3	3	14	0	73	108	**4,153**
1996	2,279	950	363	0	0	7	4	9	0	95	81	**3,788**
1997	1,893	589	372	305	90	9	1	7	41	72	33	**3,414**
1998	1,677	372	360	400	101	3	4	7	36	85	41	**3,086**
1999	1,622	343	373	466	111	5	1	7	35	77	50	**3,090**
2000	1,535	328	335	484	145	4	4	12	48	87	50	**3,032**
2001	1,402	293	353	464	118	6	2	6	51	88	60	**2,843**
2002	1,332	278	346	434	130	3	3	7	34	71	63	**2,701**
2003	1,306	248	280	420	123	7	0	12	39	76	65	**2,576**
2004	1,284	268	313	399	99	2	4	9	34	102	74	**2,588**
Total	**16,835**	**4,704**	**3,507**	**3,372**	**917**	**49**	**26**	**90**	**318**	**826**	**625**	**31,271**
Percent	**53.8%**	**15.0%**	**11.2%**	**10.8%**	**2.9%**	**0.2%**	**0.1%**	**0.3%**	**1.0%**	**2.6%**	**2.0%**	**100.0%**

Source: Federal Railroad Administration

Exhibit 9. Illinois Highway-Rail Grade Crossing Collisions by Type of Vehicle: 1995 – 2004.

Year	Passenger Cars	Trucks	Truck Trailer	PickUp	Van	Bus	School Bus	Motorcycle	Other Vehicle	Pedestrian	Other Non-Motor	Total
1995	159	64	19	0	0	0	2	2	0	9	8	**263**
1996	125	56	0	0	0	0	0	0	5	12	2	**200**
1997	118	55	0	0	0	0	0	0	5	10	1	**189**
1998	98	59	0	0	0	0	0	2	7	10	2	**178**
1999	88	60	0	0	0	1	0	1	11	13	2	**176**
2000	105	18	16	26	9	0	0	2	3	14	2	**195**
2001	97	15	15	25	15	0	0	1	4	13	3	**188**
2002	81	15	11	23	12	0	0	0	5	8	3	**158**
2003	83	9	6	18	7	0	0	0	4	11	1	**139**
2004	109	17	6	8	3	0	0	0	2	9	3	**157**
Total	**1,063**	**368**	**73**	**100**	**46**	**1**	**2**	**8**	**46**	**109**	**27**	**1,843**
Percent	**57.7%**	**20.0%**	**4.0%**	**5.4%**	**2.5%**	**0.1%**	**0.1%**	**0.4%**	**2.5%**	**5.9%**	**1.5%**	**100.0%**

Source: Illinois Commerce Commission

Exhibit 10. Northeastern Illinois Highway-Rail Grade Crossing Collisions by Type of Vehicle: 1995 – 2004.

Year	Passenger Cars	Trucks	Truck Trailer	PickUp	Van	Bus	School Bus	Motorcycle	Other Vehicle	Pedestrian	Other Non-Motor	Total
1995	77	15	8	0	0	0	1	1	0	8	3	**113**
1996	50	11	2	0	0	0	0	0	0	12	1	**76**
1997	46	3	5	2	1	0	0	0	0	9	1	**67**
1998	37	8	6	3	2	0	0	1	0	8	1	**66**
1999	40	5	3	4	3	1	0	0	0	12	3	**71**
2000	53	5	8	5	4	0	0	1	1	8	0	**85**
2001	43	3	8	6	10	0	0	0	0	11	1	**82**
2002	32	3	4	1	8	0	0	0	1	9	1	**59**
2003	36	3	4	1	1	0	0	0	0	5	0	**50**
2004	36	3	2	3	1	0	0	0	0	3	2	**50**
Total	**450**	**59**	**50**	**25**	**30**	**1**	**1**	**3**	**2**	**85**	**13**	**719**
Percent	**62.6%**	**8.2%**	**7.0%**	**3.5%**	**4.2%**	**0.1%**	**0.1%**	**0.4%**	**0.3%**	**11.8%**	**1.8%**	**100.0%**

Source: Illinois Commerce Commission

Nationally, as well as in Illinois, auto passenger vehicles, are the dominant vehicle type involved in train-vehicle collisions. The relative percentage of pedestrian-train collisions increases along with the increase in population density. Collisions between trains and pedestrians nationally, account for just 4.6 percent of all vehicle-train collisions. However, in the densely urbanized area of northeastern Illinois, pedestrian-train collisions account for 13.6 percent of all vehicle-train collisions.

Exhibit 11. Comparison of Percentage of Vehicle-Train Collisions by Vehicle Type, and by Geography: 1995 – 2004.

Type of Vehicle	USA	Illinois	Northeastern Illinois
Auto	53.8	57.6	62.7
Trucks	15.0	20.0	8.2
Truck-Trailer	11.2	4.0	7.0
Pick Up	10.8	5.4	3.5
Van	2.9	2.5	4.2
Bus	0.3	0.2	0.1
Motorcycle	0.3	0.4	0.4
Other Vehicle	1.0	2.5	0.3
Pedestrian	2.6	5.9	11.8
Other Non-Motorized	2.0	1.5	1.8
Total	**100.0**	**100.0**	**100.0**

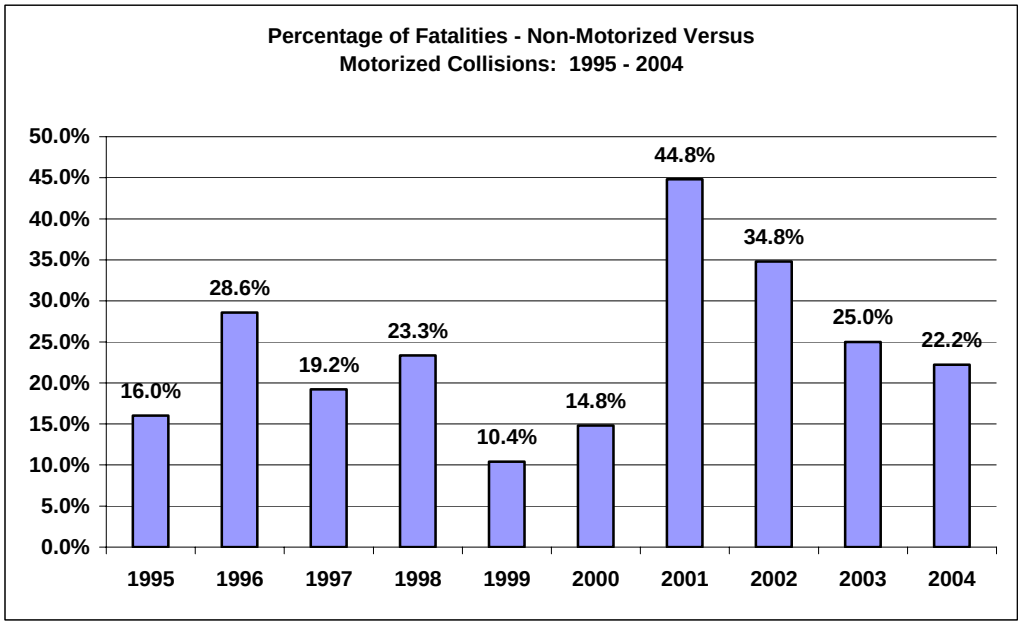
Source: Illinois Commerce Commission, Federal Railroad Administration

The final component of this section compares the percentage of fatalities arising from vehicle-train collisions in Illinois that involve motorized vehicles, against the percentage of vehicle-train collisions that involve non-motorized highway users.

Exhibit 12. Comparison of Percentage of Fatalities in Illinois – Non-Motorized Versus Motorized Vehicles: 1995 – 2004.

Year	Motorized	Percent Motorized	Non-Motorized	Percent Non-Motorized	Total Fatalities
1995	42	84.0%	8	16.0%	50
1996	25	71.4%	10	28.6%	35
1997	21	80.8%	5	19.2%	26
1998	23	76.7%	7	23.3%	30
1999	43	89.6%	5	10.4%	48
2000	23	85.2%	4	14.8%	27
2001	16	55.2%	13	44.8%	29
2002	15	65.2%	8	34.8%	23
2003	21	75.0%	7	25.0%	28
2004	21	77.8%	6	22.2%	27
Total	**250**	**77.4%**	**73**	**22.6%**	**323**

Source: Illinois Commerce Commission



The relative percentage of incidents that result in a fatality to pedestrians, changes substantially from year to year. In 2001, 29 fatalities occurred at highway-rail crossings, with 13, or 44.8 percent occurring to pedestrians and other non-motorized highway users, in contrast, in 1999, 10.4 percent of fatalities occurred to pedestrians.

This section provided a number of tables summarizing traffic crashes throughout the entire USA, as well as in Illinois. The background also provided tabulations of the type and quantity of highway-rail grade crossings by the type of warning device for public highway-rail grade crossings in the nation, Illinois and northeastern Illinois. A variety of Tables also summarized vehicle-train collisions at public highway-rail grade crossings, by the type of vehicle involved, and at three geographies; national, state and regional.

The Analysis focuses on two items:

- Analysis to determine the quantity and type of pedestrian walkways at highway-rail grade crossings and Metra stations in northeastern Illinois, and
- Analysis of 39 pedestrian-train collisions that occurred in Illinois between January 1, 2000 and December 31, 2004

3. Analysis of Pedestrian Surfaces and Warning Devices

Pedestrian safety is a very complex transportation safety challenge. The first issue to address is simply to reach an understanding as to what is a pedestrian? Does this include pedestrians who are actually trespassing, or attempting to commit suicide? Does the definition include only pedestrians at legally recognized grade crossings that have U.S. Department of Transportation inventory numbers, or does it also include individuals who were on crosswalks at Metra platforms? Trespassing and suicides, while significant public safety concerns, are not the focus of this analysis and are worthy topics of their own research. The definitional challenges required a detailed review of all available incident reports to properly assign each incident as either:

- Collision between a pedestrian and a train at a highway-rail grade crossing
- Collision between a pedestrian and a train at a pedestrian-rail grade crossing
- Collision between a pedestrian and a train at a Metra station crosswalk
- Trespasser struck by a train not at a highway-rail grade crossing
- Suicide attempted anywhere along the railroad right-of-way

The analysis presents:

- Analysis of 1,697 highway-rail grade crossings in northeastern Illinois to determine number with pedestrian access. Pedestrian access consists of both a sidewalk approach and railroad surface
- Analysis of 1,697 highway-rail grade crossings in northeastern Illinois to determine the type and quantity of pedestrian warning devices present
- Analysis of 107 pedestrian-rail grade crossings in northeastern Illinois to determine the type and quantity of pedestrian warning devices present
- Analysis of 229 Metra stations to determine the type and quantity of pedestrian crosswalks present
- Analysis of 197 Metra crosswalks to determine the type and quantity of pedestrian warning devices present
- Analysis of 39 collisions between trains and pedestrians between 2000 and 2004 that occurred in northeastern Illinois

The data used to determine the number of highway-rail grade crossings and their characteristics is drawn from the Commission's inventory of all rail crossings and structures in Illinois, referred to as CRISIS. The grade crossing data was supplemented with information from Metra's *Operations Profile* track charts.

The study area for this analysis was northeastern Illinois, consisting of Cook, DuPage, Kane, Lake, McHenry, and Will counties. The six-county region has approximately two-thirds of Illinois' population, and 20 percent of the total number of highway rail grade crossings (1,697 of 8,485) in Illinois.

The methodology employed was for Commission staff to utilize information in the Commission's inventory of grade crossings and structures (CRISIS) to develop a list of highway-rail grade crossings in northeastern Illinois. Data from a recently completed field survey was merged into the CRISIS data. This data included the type of sidewalk present, type of surface, and type and number of pedestrian gates. Aerial photography of each crossing, as well as four or more digital ground photographs of each location, were also utilized to develop a number of tabulations describing the type of pedestrian surface at highway-rail grade crossings and pedestrian crosswalks at Metra stations.

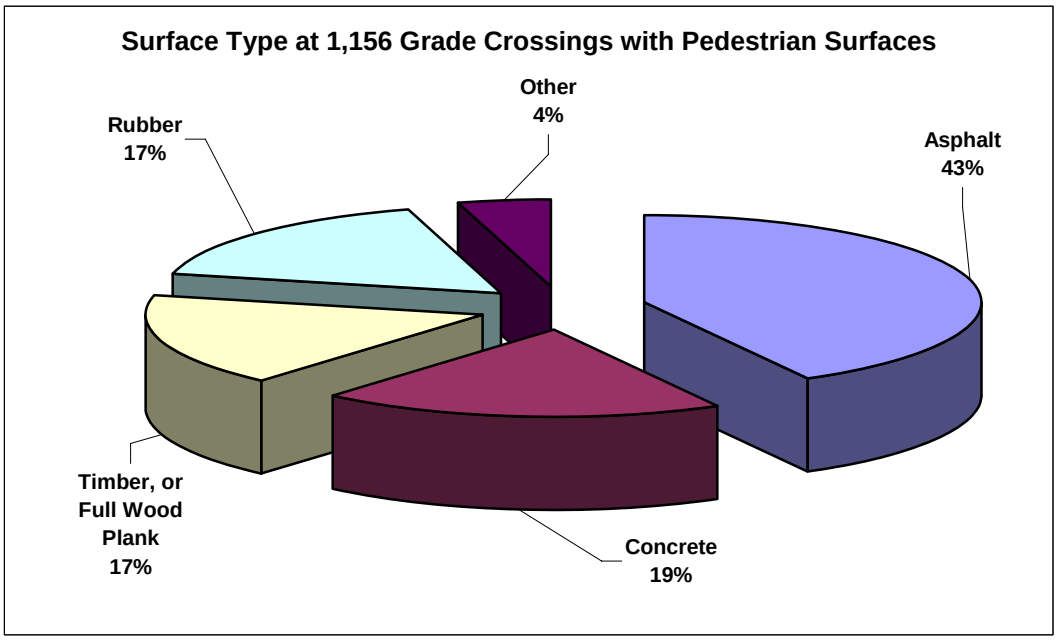
3.1. Analysis of Pedestrian Surfaces at Rail Crossings and Metra Stations

Of 1,697 public highway-rail grade crossings in northeastern Illinois; 1,156 (68%) provide pedestrian access consisting of a sidewalk approaching the rail and a surface that spans the space between the rails to permit a pedestrian to safely traverse the crossing.

Exhibit 13 shows that the surface of the sidewalk is typically comprised of asphalt, concrete, timber or rubber. The access could either be a separate path away from the roadway, or immediately adjacent to the roadway, as in a typical sidewalk.

Exhibit 13. Table and Chart of the Type of Pedestrian Walkway Surface at 1,697 Highway-Rail Grade Crossings in Northeastern Illinois.

Surface Material	Crossings	Percent
None	541	31.9%
Asphalt	486	28.6%
Concrete	223	13.1%
Timber / Full Wood Plank	201	11.8%
Rubber	194	11.4%
Other	52	3.1%
Total	**1,697**	**100.0%**



At 1,697 highway-rail grade crossings where a pedestrian may legally cross railroad tracks in northeastern Illinois; 1,156 locations provide a dedicated walkway just for the use of pedestrians, or 68 percent of all locations. Locations that do not have any sort of pedestrian access are generally industrial, or rural locations. However, with pedestrian growth and redevelopment, these numbers continue to rise.

Exhibit 14. Illustrations of typical surfaces at highway-rail grade crossings.

Rural location with a timber surface for pedestrians and concrete for highway.

Suburban Metra station with a timber surface and asphalt between the tracks.

Rural location with timber surfaced walkway in background.

Typical suburban setting where an asphalt crosswalk is provided as part of overall roadway surface.

3.2. Analysis of Pedestrian Warning Devices at Rail Crossings and Metra Stations

Approximately 74 percent (1,256 of 1,697) of highway-rail grade crossings in northeastern Illinois provide a warning device specifically for pedestrian traffic. The majority of those crossings with no pedestrian warning devices are highway-rail grade crossings marked with passive crossbuck signs. Approximately 70 percent (75 of 107) of pedestrian-rail grade crossings provide a warning device for the pedestrian. The predominant type of warning device is a bell (59.8%), followed by gates (9.0%).

In addition, Fifty-five percent (55%) of Metra stations have exclusive access for Metra patrons to traverse the tracks, while the majority of others use an adjacent highway-rail grade crossing to access the station. Metra crosswalks are intended for the use of Metra patrons only, however, many are used illegally per Illinois Vehicle Code Section 5/18c-7503.

The 125 Metra stations with crosswalks, have a total of 197 crosswalks. Fifty-eight of these crosswalks are provided with automatic warning devices, usually short masted automatic flashing lights with bells located between tracks (see Lombard Station Photo for an illustration). Generally, inter-track fencing is also provided at these locations to prevent people from simply cutting across the tracks at some point other than at the crosswalk.

Exhibit 15. Crosswalks and Pedestrian Warning Devices at 229 Metra Stations in Northeastern Illinois.

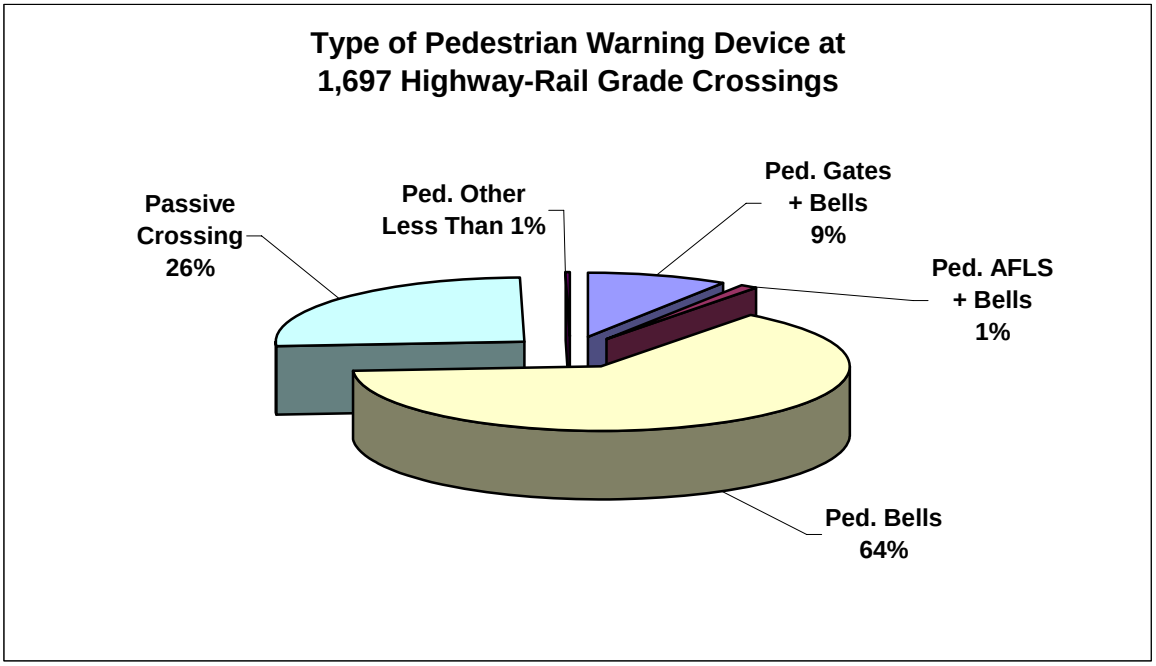
Metra Line	Stations	Stations With Crosswalks	% Of Stations With Crosswalks	Number of Crosswalks	Crosswalks With Active Warning Devices	% Of Crosswalks With Active Warning Devices
BNSF - Aurora	27	14	51.9%	17	7	41.2%
CSSSB - Illinois	1	1	100.0%	7	0	0.0%
Heritage Corridor	5	5	100.0%	9	0	0.0%
IC Electric Blue Island	5	0	0.0%	0	0	0.0%
IC Electric Main Line	34	10	29.4%	22	0	0.0%
IC Electric South Chicago	8	0	0.0%	0	0	0.0%
Milwaukee North	18	18	100.0%	20	7	35.0%
Milwaukee West	24	20	83.3%	38	1	2.6%
North Central Service	11	4	36.4%	5	5	100.0%
Rock Island Beverly Line	12	10	83.3%	17	0	0.0%
Rock Island Main Line	14	9	64.3%	23	1	4.3%
Southwest Service	9	6	66.7%	7	5	71.4%
UP North Line	23	10	43.5%	12	12	100.0%
UP Northwest Line	20	10	50.0%	13	13	100.0%
UP Northwest McHenry Line	1	0	0.0%	0	0	0.0%
UP West Line	17	7	41.2%	7	7	100.0%
Total	**229**	**124**	**54.1%**	**197**	**58**	**29.4%**

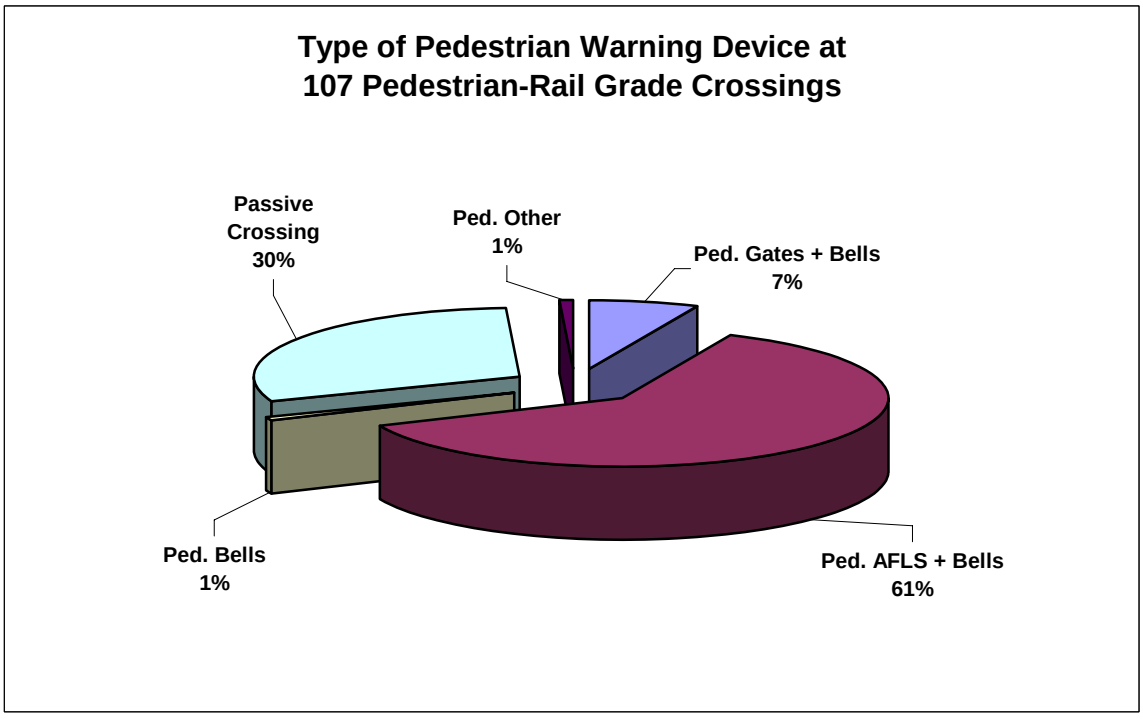
Source: Illinois Commerce Commission, Metra Operations Profiles

At 1,697 highway-rail grade crossings where a pedestrian may legally cross railroad tracks in northeastern Illinois; 1,156 locations provide a dedicated walkway just for the use of pedestrians, or 68 percent (68%) of all locations. Locations that do not have any sort of pedestrian access are generally industrial, or rural locations. However, with pedestrian growth and redevelopment, these numbers continue to rise.

Exhibit 16. Type of Pedestrian Warning Devices at Highway-Rail and Pedestrian-Rail Grade Crossings in Northeastern Illinois.

Type of Rail Crossing	Number of Crossings	Number of Crossings W/ Active Warning Devices	Ped. Gates & Bells	Ped. Automatic Flashing Lights & Bells	Ped. Bells	Ped. Other
Highway-Rail	1,697	1,256	155	20	1,078	3
Pedestrian-Rail	107	75	7	66	1	1
Metra Crosswalk	197	58	0	58	0	0
Total	**2,001**	**1,389**	**162**	**86**	**1,079**	**4**


Type of Pedestrian Warning Device at
1,697 Highway-Rail Grade Crossings
Passive Crossing 26%
Ped. Other Less Than 1%
Ped. Gates + Bells 9%
Ped. AFLS + Bells 1%
Ped. Bells 64%


Type of Pedestrian Warning Device at
107 Pedestrian-Rail Grade Crossings
Passive Crossing 30%
Ped. Other 1%
Ped. Gates + Bells 7%
Ped. Bells 1%
Ped. AFLS + Bells 61%

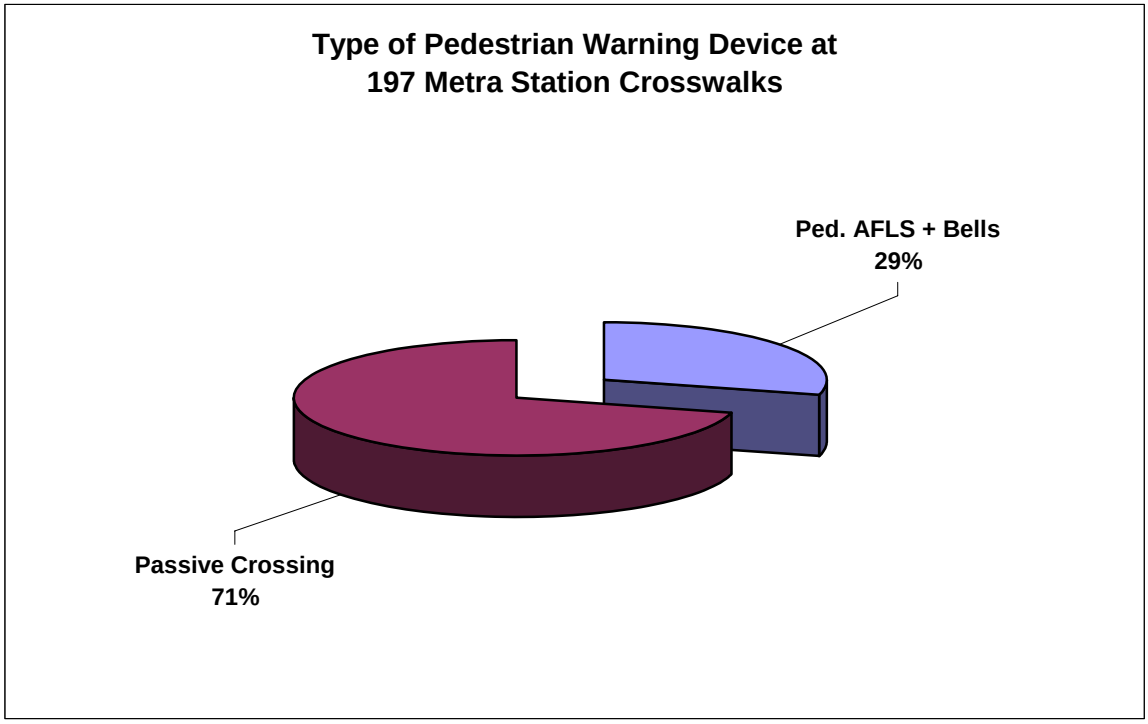
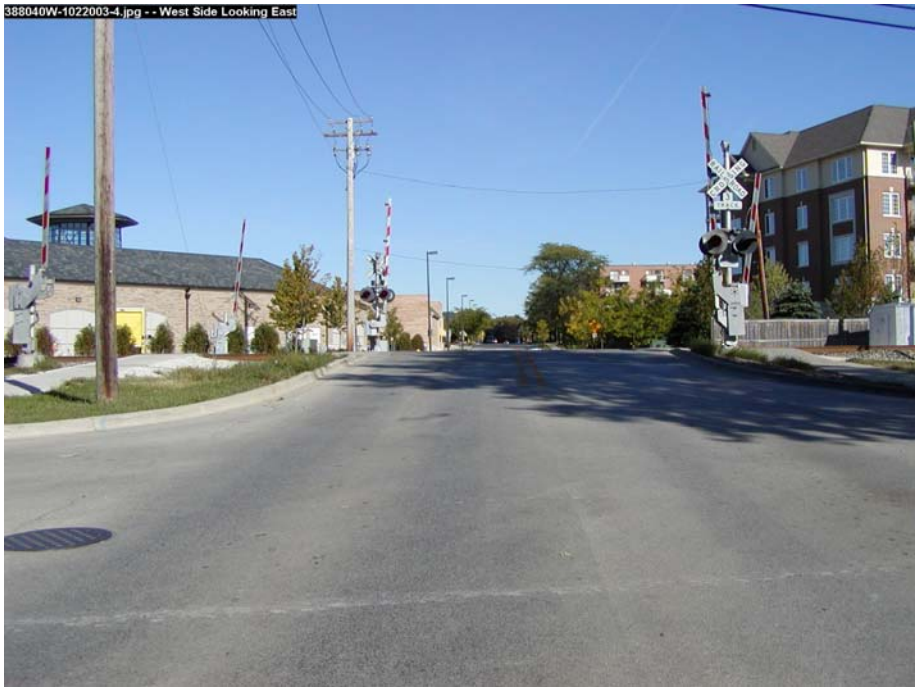

Type of Pedestrian Warning Device at
197 Metra Station Crosswalks
Ped. AFLS + Bells
29%
Passive Crossing
71%

Exhibit 17. Illustrations of Typical Pedestrian Warning Devices in Northeastern Illinois.

Pedestrian Gates on Metra's South Chicago Line.

Pedestrian Automatic Flashing Lights with a Pedestrian Bell at 73rd Street in Elmwood Park.

Lombard Metra Station Crosswalk with Flashing Lights and Bells, as well as Inter-track Fencing.



Highway Gates and Pedestrian Gates at Osterman Avenue in Deerfield.

3.3. Analysis of Pedestrian-Train Collisions that Occurred Between January 1, 2000 through December 31, 2004

In northeastern Illinois between January 1, 2000 and December 31, 2004, there were 39 collisions between pedestrians and trains that resulted in 25 fatalities and 14 injuries. The probability of being fatally injured in a traffic crash is much greater for a pedestrian than for a motor vehicle operator or passenger. Overall, 14 percent of motorized vehicle train collisions result in a fatality and 38 percent in injury. In contrast, 64 percent of pedestrian train collisions resulted in death and 36 percent in injury.

The data used to quantify and analyze the number of pedestrian related incidents comes from several sources, including; police traffic crash reports, police death investigations, coroner's inquests, Federal Railroad Administration reports, Illinois Emergency Management Agency reports, ICC staff investigations, and news clips. The data was used to reconstruct a summary of the pedestrian incidents that occurred at grade crossings in northeastern Illinois between January 1, 2000 and December 31, 2004.

Analysis of 39 Incidents: An apparent cause of the pedestrian-train collision was subjectively able to be determined in 33 of the 39 pedestrian-train collisions that occurred in northeastern Illinois between January 1, 2000 and December 31, 2004. Appendix 1 provides a summary of 33 of the 39 pedestrian-train collisions, along with a photo of the location where the collision occurred.

The reasons pedestrians are involved in collisions with trains, are largely the same as for a motorized user; human error; disregard of the warning devices; weather; and physical geometric constraints, such as sight obstructions. It was not uncommon to read the police death investigation or traffic crash report and see where the train crew, or other witnesses alleged that the victim had simply ignored, or not observed the activated warning devices.

The photos above show pedestrians disregarding the pedestrian warning devices.

This section of the analysis provides a variety of tables describing the 39 pedestrian-train collisions that occurred in northeastern Illinois between January 1, 2000 and December 31, 2004, including:

- Age and gender of pedestrian struck
- City and county where pedestrian-train collisions occurred
- Type of pedestrian struck
- Type of land use at location where pedestrian was struck
- Type of railroad service provided by train that struck the pedestrian
- Railroad that reported the pedestrian-train collision
- Type of surface at the location where the pedestrian-train collision occurred
- Type of pedestrian and highway warning devices at the crossing where the pedestrian-train collision occurred
- List of the 39 pedestrian-train collisions between January 1, 2000 and December 31, 2004
- Apparent cause of the 39 pedestrian-train collisions that occurred in northeastern Illinois

Exhibit 18 shows that pedestrian-train collisions are evenly split between males and females. The 40 to 49 age cohort experienced more pedestrian-train collisions than any other age cohort. Seven of the 18 pedestrian-train collisions involving females, involved women between the age of 40 and 49.

Exhibit 18. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 Summarized by Age and Gender.

Age Group	Male	Percent	Female	Percent	Total	Percent
10 and Under	3	23.1%	0	0.0%	**3**	**9.7%**
11 to 19	3	23.1%	0	0.0%	**3**	**9.7%**
20 to 29	1	7.7%	4	22.2%	**5**	**16.1%**
30 to 39	1	7.7%	3	16.7%	**4**	**12.9%**
40 to 49	3	23.1%	7	38.9%	**10**	**32.3%**
50 to 59	2	15.4%	0	0.0%	**2**	**6.5%**
60 and Over	0	0.0%	4	22.2%	**4**	**12.9%**
Total	**13**	**100.0%**	**18**	**100.0%**	**31**	**100.0%**

Age Available in 31 Cases

Gender	Collisions	Percent
Female	18	50.0%
Male	18	50.0%
Total	**36**	

Gender Available in 36 Cases

Exhibit 19 demonstrates that two-thirds of the 39 pedestrian-train collisions occurred in Cook County. The city of Chicago had more pedestrian-train

collisions than any other city with ten pedestrians being involved in pedestrian-train collisions.

Exhibit 19. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 Summarized by City and County of Occurrence.

City	Collisions	Percent
CHICAGO	10	25.6%
DOWNERS GROVE	3	7.7%
DES PLAINES	2	5.1%
GLEN ELLYN	2	5.1%
ALSIP	1	2.6%
ARLINGTON HEIGHTS	1	2.6%
BERWYN	1	2.6%
CHICAGO HEIGHTS	1	2.6%
DEERFIELD	1	2.6%
ELMWOOD PARK	1	2.6%
ELWOOD	1	2.6%
EVERGREEN PARK	1	2.6%
GLENVIEW	1	2.6%
HINSDALE	1	2.6%
JOLIET	1	2.6%
LA GRANGE	1	2.6%
LOMBARD	1	2.6%
MAYWOOD	1	2.6%
MOKENA	1	2.6%
OAK LAWN	1	2.6%
RIVER GROVE	1	2.6%
RIVERDALE	1	2.6%
ROSELLE	1	2.6%
ROUND LAKE	1	2.6%
SCHAUMBURG	1	2.6%
TINLEY PARK	1	2.6%
Total	**39**	**100.0%**

County	Collisions	Percent
COOK	26	66.7%
DU PAGE	9	23.1%
LAKE	2	5.1%
WILL	2	5.1%
Total	**39**	**100.0%**

Exhibit 20. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 Summarized by Type of Pedestrian.

Type of Pedestrian	Collisions	Percent	Fatalities	Percent	Injuries	Percent
Bicycle	3	7.7%	3	12.0%	0	0.0%
Pedestrian	33	84.6%	20	80.0%	14	100.0%
Wheelchair	3	7.7%	2	8.0%	0	0.0%
Total	**39**	**100.0%**	**25**	**100.0%**	**14**	**100.0%**

Exhibit 21. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 by Type of Landuse.

Land Use	Collisions	Percent
Rural	2	5.1%
Suburban	27	69.2%
Urban	10	25.6%
Total	**39**	**100.0%**

Exhibit 22. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 by Type of Railroad and Reporting Railroad.

Type of Rail Service	Collisions	Percent
Metra	22	56.4%
Freight	12	30.8%
Amtrak	5	12.8%
Total	**39**	**100.0%**

Railroad Reporting	Collisions	Percent
NIRC-Metra	14	35.9%
UP-Metra	6	15.4%
ATK	5	12.8%
CSX	5	12.8%
BNSF	2	5.1%
BNSF-Metra	2	5.1%
EJE	1	2.6%
IHB	1	2.6%
SOO	1	2.6%
UP	1	2.6%
WC	1	2.6%
Total	**39**	**100.0%**

Railroad Line	Collisions	Percent
Freight	11	28.2%
Metra-Electric-SC	5	12.8%
Metra-UP-West	4	10.3%
Metra-MILW-West	3	7.7%
Metra-RI-Main	3	7.7%
Amtrak-BNSF	2	5.1%
Metra-BNSF	2	5.1%
Metra-MILW-North	2	5.1%
Metra-UP-Northwest	2	5.1%
Amtrak-East	1	2.6%
Amtrak-Milwaukee-N	1	2.6%
Amtrak-UP	1	2.6%
Metra-Electric-BI	1	2.6%
Yard / Switching	1	2.6%
Total	**39**	**100.0%**

Exhibit 23. Northeastern Illinois Pedestrian-Train Collisions Between 2000 and 2004 by Type of Surface.

Type of Pedestrian Surface	Collisions	Percent
Asphalt	12	38.7%
Concrete	0	0.0%
None	3	9.7%
Rubber	1	3.2%
Timber	11	35.5%
Unknown	4	12.9%
Total	**31**	**100.0%**

8 Collisions Surface Not Available

Presence of Pedestrian Surfaces	Collisions	Percent
No	2	6.5%
Yes - All 4 Quads	25	80.6%
Yes - NE Quad Only	1	3.2%
Yes - NW & NE Quads	1	3.2%
Yes - NW & SW Quads	1	3.2%
Yes - SE & SW Quads	1	3.2%
Total	**31**	**100.0%**

8 Collisions Surface Not Available

Type of Rail Crossing	Highway AFLS With Ped. Bells	Highway AFLS & Gates With Ped. Bells	Highway AFLS & Gates With Ped. AFLS	Highway AFLS & Gates With Ped. Gates	Pedestrian AFLS With Ped. Bells	No Pedestrian Warning Devices	Total
Highway-Rail	1	16	2	12			**31**
Pedestrian-Rail					0	0	**0**
Metra Crosswalk					4	4	**8**
Total	**1**	**16**	**2**	**12**	**4**	**4**	**39**

Exhibit 24. List of Pedestrian-Train Collisions in Northeastern Illinois Between 2000 and 2004.

DATE	TIME	RR-REP	RR-TYPE	VEHICLE-TYPE	HIGHWAY DEVICE	PED DEVICE	HIGHWAY	CITY	COUNTY	INJ	KLD	AGE	GENDER
8/26/2000	0506PM	CSX	Freight	Pedestrian	Gates	Bell(s)	123rd St	Alsip	Cook	1	0	13	Male
5/29/2003	0330PM	UPME	Metra-UP-Northwest	Pedestrian	AFLS	AFLS	Metra Station	Arlington Heights	Cook	1	0		N/A
8/27/2001	0748AM	BNSO	Metra-BNSF	Pedestrian	Gates	Gates	Grove Ave	Berwyn	Cook	0	1	43	Female
3/9/2000	0949PM	CSX	Freight	Pedestrian	Gates	Bell(s)	138th St	Chicago	Cook	1	0	49	Male
3/28/2001	0955AM	NIRC	Metra-Electric-BI	Pedestrian	Gates	Bell(s)	Michigan Ave	Chicago	Cook	1	0	21	Male
6/25/2001	0202PM	CSX	Freight	Pedestrian	Gates	Bell(s)	107th St	Chicago	Cook	0	1	21	Female
4/5/2002	0525PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	E 72nd St	Chicago	Cook	1	0	25	Female
4/12/2002	0132PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	E 72nd St	Chicago	Cook	1	0	21	Female
6/1/2002	0133PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	Merrill Ave	Chicago	Cook	1	0	30	Female
8/26/2002	0542PM	NIRC	Metra-RI-Main	Pedestrian	Gates	Bell(s)	Monterey Ave	Chicago	Cook	0	1	10	Male
11/22/2003	1052AM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	75th St	Chicago	Cook	1	0	41	Female
12/29/2003	1031AM	ATK	Amtrak-East	Pedestrian	Gates	Bell(s)	Perry Ave	Chicago	Cook	0	1	46	Female
6/4/2004	0437AM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	71st St	Chicago	Cook	0	1	38	Female
12/13/2001	0621PM	CSX	Freight	Pedestrian	Gates	Bell(s)	12th St	Chicago Heights	Cook	0	1	34	Female
7/10/2001	0543PM	ATK	Amtrak-Milwaukee-N	Pedestrian	Gates	Gates	Osterman Ave	Deerfield	Lake	0	1	83	Female
4/26/2000	0450PM	UPME	Metra-UP-Northwest	Pedestrian	Gates	Gates	Pearson St	Des Plaines	Cook	1	0		N/A
12/4/2002	1120PM	WC	Freight	Pedestrian	Gates	Bell(s)	Graceland Ave	Des Plaines	Cook	0	1	76	Female
11/27/2000	0840PM	BNSF	Freight	Pedestrian	Gates	Gates	Main St	Downers Grove	Du Page	1	0	28	Male
3/31/2001	0623PM	ATK	Amtrak-BNSF	Pedestrian	Gates	AFLS	Belmont Rd	Downers Grove	Du Page	0	1	20	Female
3/2/2004	0230PM	ATK	Amtrak-BNSF	Wheelchair	Gates	Gates	Main St	Downers Grove	Du Page	1	0	65	Female
11/15/2004	0545PM	NIRC	Metra-MILW-West	Pedestrian	Gates	AFLS	73rd St	Elmwood Park	Cook	0	1	39	Male
5/23/2000	0653PM	ATK	Amtrak-UP	Pedestrian	AFLS	Bell(s)	Mississippi Rd	Elwood	Will	0	1	17	Male
6/9/2000	0255PM	CSX	Freight	Wheelchair	Gates	Bell(s)	99th St	Evergreen Park	Cook	0	1	48	Female
6/29/2000	0705AM	UPME	Metra-UP-West	Pedestrian	AFLS	AFLS	Metra Station	Glen Ellyn	Du Page	0	1		N/A
4/22/2001	0227PM	UPME	Metra-UP-West	Pedestrian	AFLS	AFLS	Metra Station	Glen Ellyn	Du Page	0	1	41	Female
5/25/2004	0340PM	NIRC	Metra-MILW-North	Bicycle	Gates	Bell(s)	Glenview Rd	Glenview	Cook	0	1	10	Male
11/23/2003	0307PM	BNSF	Freight	Pedestrian	Gates	Gates	Washington St	Hinsdale	Du Page	0	1	48	Female
11/28/2002	1000PM	EJE	Freight	Pedestrian	Gates	Bell(s)	Woodruff Rd	Joliet	Will	1	0	31	Male
1/31/2001	0249PM	BNSO	Metra-BNSF	Pedestrian	Gates	Gates	Ashland Ave	La Grange	Cook	0	1	79	Female
8/28/2003	0548PM	UPME	Metra-UP-West	Pedestrian	Bells	AFLS	Metra Station	Lombard	Du Page	0	1	58	Male
12/13/2002	0755PM	UPME	Metra-UP-West	Pedestrian	Gates	Gates	Broadway St	Maywood	Cook	0	1	30	Male
9/23/2004	0500PM	NIRC	Metra-RI-Main	Pedestrian	N/A	None	Metra Station	Mokena	Cook	1	0	47	Male
10/22/2001	0748AM	UP	Freight	Wheelchair	Gates	Bell(s)	Central Ave	Oak Lawn	Cook	0	1	45	Male
2/23/2004	0615PM	NIRC	Metra-MILW-West	Pedestrian	N/A	None	Metra Station	River Grove	Cook	0	1	10	Male
8/26/2000	0700PM	IHB	Yard / Switching	Pedestrian	Gates	Bell(s)	Indiana Ave	Riverdale	Cook	1	0	38	Male
5/22/2000	0450PM	SOO	Freight	Bicycle	N/A	None	Metra Station	Roselle	Du Page	0	1	15	Male
8/1/2001	0700AM	NIRC	Metra-MILW-North	Pedestrian	Gates	Bell(s)	Cedarl Lake Rd	Round Lake	Lake	0	1	41	Female
10/9/2000	0627AM	NIRC	Metra-MILW-West	Pedestrian	N/A	None	Metra Station	Schaumburg	Du Page	0	1	18	Male
9/14/2004	0802PM	NIRC	Metra-RI-Main	Bicycle	Gates	Bell(s)	Oak Park Ave	Tinley Park	Cook	0	1	50	Male

Note: Sorted by City Name and Date

Exhibit 25. Apparent Cause of Pedestrian-Train Collisions Northeastern Illinois.

Apparent Cause of Pedestrian-Train Collision	Collision	Percent
Disregarded Warning Devices	22	66.7%
Second Train Related	6	18.2%
Stood Too Close to Tracks	3	9.1%
Stepped into Path of Train (Headphones)	1	3.0%
Tripped and Stumbled into Path of Train	1	3.0%
Total	**33**	**100.0%**
Not Determined	6	

4. Examples of Potential Pedestrian Safety Enhancements

- Signage – passive warning signs, semi-active warning signs and entirely active warning signs
- Pavement and/or walkway markings – tactile strips, etc
- Pedestrian flashing lights with bells – usually a dwarf AFLS signal of some type with bell located nearby
- Pedestrian Gates
- Channelization utilizing fencing or physical barriers
- Pedestrian bridges and tunnelsUnder and over passes
- Applicability of all of above to non-standard user population warnings – non-English speaking populations, physically handicapped individuals, etc

5. Conclusion

The consequences of a poor decision on the part of the pedestrian are extreme in terms of physical harm, therefore, it is prudent to pay specific engineering and design attention to the needs of non-motorized users of highway-rail grade crossings. This objective, while not specifically stated, is in harmony with Section 5/18c of the Illinois Vehicle Code that declares the State's policy in regards to safe railroad grade crossings.

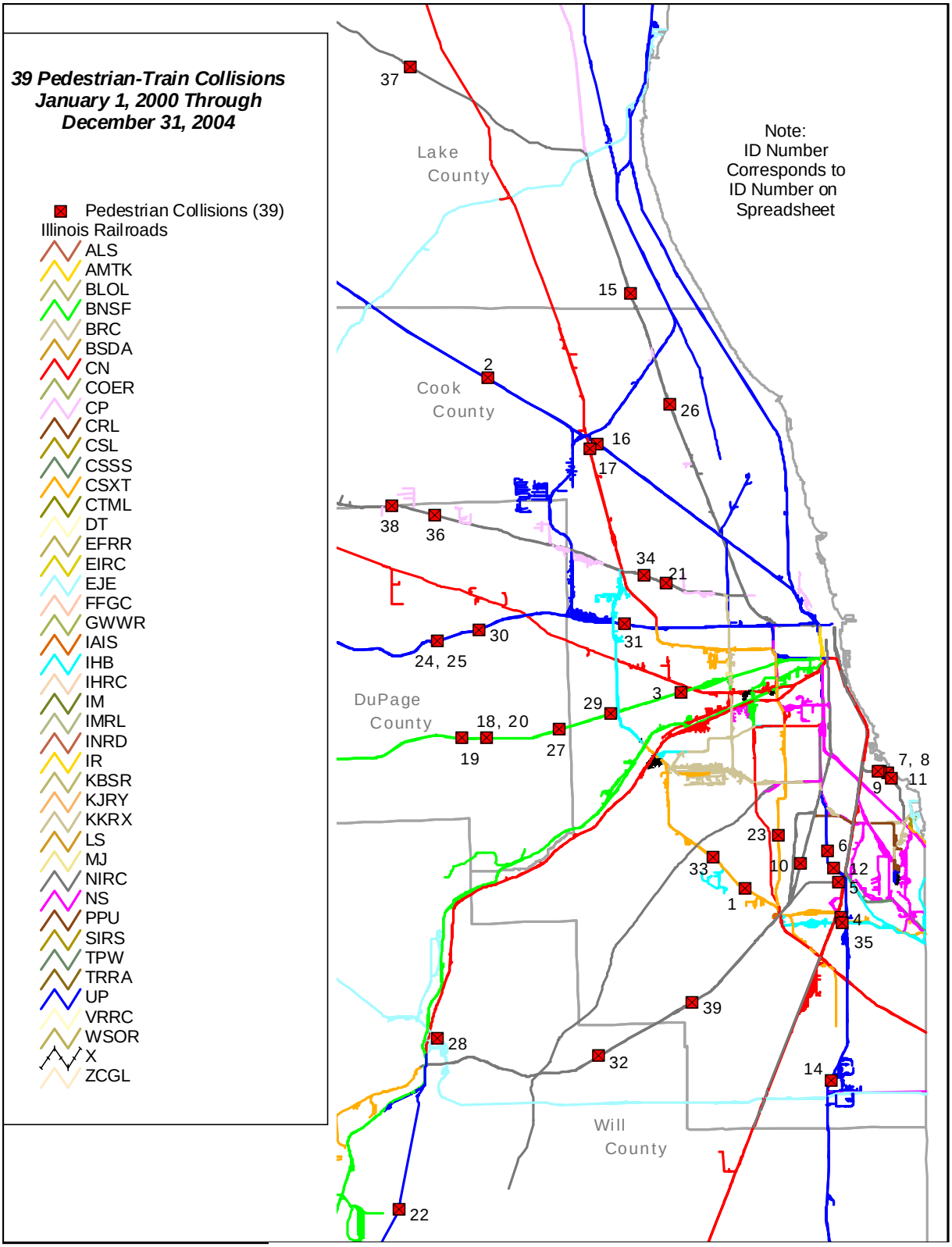
- Conclusion 1 – Sixty-six percent (22 of 33) of these pedestrian-train collisions appear to have been caused by the pedestrian disregarding the warning devices provided that indicated a train was approaching; many of these crossings were equipped with pedestrian gates.
- Conclusion 2 – Twenty-one percent (8 of 39) of the pedestrian-train collisions occurred at Metra station crosswalks that comprised only ten percent of all grade crossings in northeastern Illinois. This is most likely due to the high volume of pedestrians exposed to train traffic at the Metra station crosswalks.
- Conclusion 3 – the severity of train-pedestrian collisions are extreme. In northeastern Illinois between 2000 and 2004, 64 percent (25 of 39) of train-pedestrian collisions resulted in a fatal injury to the pedestrian. One of the highest severity rates of all transportation related incidents.
- Conclusion 4 – additional research is necessary to address the effectiveness of pedestrian safety measures at rail grade crossings
- Conclusion 5 – Pedestrian warning devices, including pedestrian gates, are commonly ignored and easy to circumvent.
- Recommendation 1 – Consideration should be given to initiate the research and development of new types of pedestrian warning systems that improve pedestrian behavior when warning of an approaching train is provided. In addition, consideration should be given to installing warning signs at Metra station crosswalks and other pedestrian-rail crossings with similar pedestrian-train exposure rates, where feasible.
- Recommendation 2 – Expand efforts of Illinois Operation Lifesaver to educate the public as to how to safely traverse highway rail grade crossings, as well as to the individual's responsibility related to crossing safety. For example, increasing the number of OL presentations in areas where reports indicate patterns of pedestrian violations and also targeting those areas with additional rail crossing safety public service announcements. In addition, continue Illinois Operation Lifesaver's work with local law enforcement

through cooperative efforts, such as the Commission's Public Education and Enforcement Research Study (PEERS).

Appendix 1. Summary of Pedestrian-train Collisions in Northeastern Illinois Between January 1, 2000 and December 31, 2004.

The summary is presented in order by City Name and Date of the collision. The six cases for which a reasonable cause could not be determined are highlighted in yellow (or italics) in the Table below, and are not included in the descriptions to follow.

ID#	DATE	TIME	RR-REP	RR-TYPE	VEHICLE-TYPE	HIGHWAY DEVICE	PED DEVICE	HIGHWAY	CITY	PROBABLE CAUSE
1	8/26/2000	0506PM	CSX	Freight	Pedestrian	Gates	Bell(s)	123rd St	Alsip	Stood Too Close To Tracks
2	*5/29/2003*	*0330PM*	*UPME*	*Metra-UP-Northwest*	*Pedestrian*	*AFLS*	*AFLS*	*Metra Station*	*Arlington Heights*	*Not Determined*
3	8/27/2001	0748AM	BNSO	Metra-BNSF	Pedestrian	Gates	Gates	Grove Ave	Berwyn	Second Train Related
4	3/9/2000	0949PM	CSX	Freight	Pedestrian	Gates	Bell(s)	138th St	Chicago	Disregard of Warning Devices
5	*3/28/2001*	*0955AM*	*NIRC*	*Metra-Electric-BI*	*Pedestrian*	*Gates*	*Bell(s)*	*Michigan Ave*	*Chicago*	*Not Determined*
6	6/25/2001	0202PM	CSX	Freight	Pedestrian	Gates	Bell(s)	107th St	Chicago	Second Train Related
7	4/5/2002	0525PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	E 72nd St	Chicago	Disregard of Warning Devices
8	4/12/2002	0132PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	E 72nd St	Chicago	Disregard of Warning Devices
9	6/1/2002	0133PM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	Merrill Ave	Chicago	Disregard of Warning Devices
10	8/26/2002	0542PM	NIRC	Metra-RI-Main	Pedestrian	Gates	Bell(s)	Monterey Ave	Chicago	Second Train Related
11	11/22/2003	1052AM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	75th St	Chicago	Stood Too Close To Tracks
12	*12/29/2003*	*1031AM*	*ATK*	*Amtrak-East*	*Pedestrian*	*Gates*	*Bell(s)*	*Perry Ave*	*Chicago*	*Not Determined*
13	6/4/2004	0437AM	NIRC	Metra-Electric-SC	Pedestrian	Gates	Gates	71st St	Chicago	Disregard of Warning Devices
14	12/13/2001	0621PM	CSX	Freight	Pedestrian	Gates	Bell(s)	12th St	Chicago Heights	Disregard of Warning Devices
15	7/10/2001	0543PM	ATK	Amtrak-Milwaukee-N	Pedestrian	Gates	Gates	Osterman Ave	Deerfield	Disregard of Warning Devices
16	*4/26/2000*	*0450PM*	*UPME*	*Metra-UP-Northwest*	*Pedestrian*	*Gates*	*Gates*	*Pearson St*	*Des Plaines*	*Not Determined*
17	12/4/2002	1120PM	WC	Freight	Pedestrian	Gates	Bell(s)	Graceland Ave	Des Plaines	Tripped and Stumbled into Path of Train
18	11/27/2000	0840PM	BNSF	Freight	Pedestrian	Gates	Gates	Main St	Downers Grove	Disregard of Warning Devices
19	3/31/2001	0623PM	ATK	Amtrak-BNSF	Pedestrian	Gates	AFLS	Belmont Rd	Downers Grove	Second Train Related
20	3/2/2004	0230PM	ATK	Amtrak-BNSF	Wheelchair	Gates	Gates	Main St	Downers Grove	Stood Too Close To Tracks
21	11/15/2004	0545PM	NIRC	Metra-MILW-West	Pedestrian	Gates	AFLS	73rd St	Elmwood Park	Disregard of Warning Devices
22	5/23/2000	0653PM	ATK	Amtrak-UP	Pedestrian	AFLS	Bell(s)	Mississippi Rd	Elwood	Disregard of Warning Devices
23	6/9/2000	0255PM	CSX	Freight	Wheelchair	Gates	Bell(s)	99th St	Evergreen Park	Disregard of Warning Devices
24	*6/29/2000*	*0705AM*	*UPME*	*Metra-UP-West*	*Pedestrian*	*AFLS*	*AFLS*	*Metra Station*	*Glen Ellyn*	*Not Determined*
25	4/22/2001	0227PM	UPME	Metra-UP-West	Pedestrian	AFLS	AFLS	Metra Station	Glen Ellyn	Disregard of Warning Devices
26	5/25/2004	0340PM	NIRC	Metra-MILW-North	Bicycle	Gates	Bell(s)	Glenview Rd	Glenview	Disregard of Warning Devices
27	11/23/2003	0307PM	BNSF	Freight	Pedestrian	Gates	Gates	Washington St	Hinsdale	Second Train Related
28	11/28/2002	1000PM	EJE	Freight	Pedestrian	Gates	Bell(s)	Woodruff Rd	Joliet	Disregard of Warning Devices
29	1/31/2001	0249PM	BNSO	Metra-BNSF	Pedestrian	Gates	Gates	Ashland Ave	La Grange	Disregard of Warning Devices
30	*8/28/2003*	*0548PM*	*UPME*	*Metra-UP-West*	*Pedestrian*	*Bells*	*AFLS*	*Metra Station*	*Lombard*	*Not Determined*
31	12/13/2002	0755PM	UPME	Metra-UP-West	Pedestrian	Gates	Gates	Broadway St	Maywood	Disregard of Warning Devices
32	9/23/2004	0500PM	NIRC	Metra-RI-Main	Pedestrian	N/A	None	Metra Station	Mokena	Stepped into Path of Train
33	10/22/2001	0748AM	UP	Freight	Wheelchair	Gates	Bell(s)	Central Ave	Oak Lawn	Disregard of Warning Devices
34	2/23/2004	0615PM	NIRC	Metra-MILW-West	Pedestrian	N/A	None	Metra Station	River Grove	Second Train Related
35	8/26/2000	0700PM	IHB	Yard / Switching	Pedestrian	Gates	Bell(s)	Indiana Ave	Riverdale	Disregard of Warning Devices
36	5/22/2000	0450PM	SOO	Freight	Bicycle	N/A	None	Metra Station	Roselle	Disregard of Warning Devices
37	8/1/2001	0700AM	NIRC	Metra-MILW-North	Pedestrian	Gates	Bell(s)	Cedarl Lake Rd	Round Lake	Disregard of Warning Devices
38	10/9/2000	0627AM	NIRC	Metra-MILW-West	Pedestrian	N/A	None	Metra Station	Schaumburg	Disregard of Warning Devices
39	9/14/2004	0802PM	NIRC	Metra-RI-Main	Bicycle	Gates	Bell(s)	Oak Park Ave	Tinley Park	Disregard of Warning Devices


39 Pedestrian-Train Collisions
January 1, 2000 Through
December 31, 2004
Pedestrian Collisions (39)
Illinois Railroads
ALS
AMTK
BLOL
BNSF
BRC
BSDA
CN
COER
CP
CRL
CSL
CSSS
CSXT
CTML
DT
EFRR
EIRC
EJE
FFGC
GWWR
IAIS
IHB
IHRC
IM
IMRL
INRD
IR
KBSR
KJRY
KKRX
LS
MJ
NIRC
NS
PPU
SIRS
TPW
TRRA
UP
VRRC
WSOR
X
ZCGL
Note:
ID Number
Corresponds to
ID Number on
Spreadsheet
Lake
County
Cook
County
DuPage
County
Will
County
37
15
2
26
16
17
38
36
34
21
30
31
24, 25
3
29
18, 20
19
27
7, 8
11
9
23
6
33
10
12
1
5
4
35
39
28
32
14
22

163574P – 8/26/2000 @ 5:06 pm
123rd Street at Alsip, Cook County
13 Year Old Pedestrian Male Injured

079490R – 8/27/2001 @ 7:48 am
Grove Avenue in Berwyn, Cook County
43 Year Old Female Pedestrian Fatally Injured

163611P – 3/9/2000 @ 9:49 pm
138th Street at Chicago, Cook County
49 Year Old Male Injured

867235G – 6/25/2001 @ 2:02 pm
107th Street at Chicago, Cook County
21 Year Old Female Pedestrian Fatally Injured

289551J – 4/5/2002 @ 5:25 pm
East 72nd Street at Chicago, Cook County
25 Year Old Female Pedestrian Injured

289551J – 4/12/2002 @ 1:32 pm
East 72nd Street at Chicago, Cook County
21 Year Old Female Pedestrian Injured

289546M – 6/1/2002 @ 1:33 pm
Merrill Avenue at Chicago, Cook County
30 Year Old Female Pedestrian Injured

608309J – 8/26/2002 @ 5:42 pm
Monterey Avenue at Chicago, Cook County
10 Year Old Male Pedestrian Fatally Injured

289554E – 11/22/2003 @ 10:52 am
75th Street at Chicago, Cook County
41 Year Old Female Pedestrian Injured

289543S – 6/4/2004 @ 4:37 am
71st Street & Jeffrey Boulevard at Chicago, Cook County
38 Year Old Female Pedestrian Killed

167486T – 12/13/2001 @ 6:21 pm
12th Street at Chicago Heights, Cook County
34 Year Old Female Pedestrian Fatally Injured

388040W – 7/10/2001 @ 5:43 pm
Osterman Avenue at Deerfield, Lake County
83 Year Old Female Pedestrian Fatally Injured

689657J – 12/4/2002 @ 11:20 pm
Graceland Avenue at Des Plaines, Cook County
76 Year Old Female Pedestrian Fatally Injured

079535V – 11/27/2000 @ 8:40 pm
Main Street at Downers Grove, DuPage County
28 Year Old Male Pedestrian Injured

079537J – 3/31/2001 @ 6:23 pm
Belmont Road at Downers Grove, DuPage County
20 Year Old Female Pedestrian Fatally Injured

079535V – 3/2/2004 @ 2:30 pm
Main Street at Downers Grove, DuPage County
65 Year Old Female in Wheelchair Injured

372127P – 11/15/2004 @ 5:45 pm
73rd Street at Elmwood Park, Cook County
39 Year Old Male Pedestrian Fatally Injured

290490S – 5/23/2000 @ 6:53 pm
Mississippi Road at Elwood, Will County
17 Year Old Male Pedestrian Fatally Injured

163432Y – 6/9/2000 @ 2:55 pm
99th Street at Evergreen Park, Cook County
48 Year Old Female in Wheelchair Fatally Injured

Glen Ellyn – April 22, 2001 @ 2:21 pm
Metra Station Platform
41 Year Old Female Pedestrian Fatally Injured

386408P – 5/25/2004 @ 3:40 pm
Glenview Road at Glenview, Cook County
10 Year Old Male Bicyclist Fatally Injured

079523B – 11/23/2003 @ 3:07 pm
Washington Street in Hinsdale, Cook County
48 Year Old Female Fatally Injured

260597M – 11/28/2002 @ 10:00 pm
Woodruff Road at Joliet, Will County
31 Year Old Male Pedestrian Injured

079509F – 1/31/2001 @ 2:49 pm
Ashland Avenue in LaGrange, Cook County
79 Year Old Female Pedestrian Fatally Injured

174009S – 12/13/2002 @ 7:55 pm
Broadway Street at Maywood, Cook County
30 Year Old Male Pedestrian Fatally Injured

Mokena – 9/23/2004 @ 5:00 pm
Metra Station Platform
47 Year Old Male Pedestrian Injured

163578S – 10/22/2001 @ 7:48 am
Central Avenue at Oak Lawn, Cook County
45 Year Old Male in Wheelchair Fatally Injured

River Grove – 2/23/2004 @ 6:15 pm
Metra Station Platform
10 Year Old Male Pedestrian Fatally Injured

326894T – 8/26/2000 @ 7:00 pm
Indiana Avenue at Riverdale, Cook County
38 Year Old Male Pedestrian Injured

Roselle – 5/22/2000 @ 4:50 pm
Metra Station Platform
15 Year Old Bicyclist Fatally Injured

386441P – 8/1/2001 @ 7:00 am
Cedar Lake Road at Round Lake, Lake County
41 Year Old Female Pedestrian Fatally Injured

Schaumburg – 10/9/2000 @ 6:15 am
Metra Station Platform
18 Year Old Male Pedestrian Fatally Injured

608951K – 9/14/2004 @ 8:02 pm
Oak Park Avenue at Tinley Park, Cook County
50 Year Old Male Bicyclist Fatally Injured